



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

**D3066-1**

**Job Sheet 170996**



**Part No:** D3066-1

**Job Qty:** 30 ea

**Part Name:** Spacer



**Part Weight:** 0 lbs

**Status:** Scheduled

**Priority:** Medium

**Job Created:** 1/25/18

**Job Tracking No:**

**Due Date:** 2/6/18

**Created By:** Linda Lacelle

**Type:** Stock

**Description:**

**Note:** DWG REV B IPP: C 02.11.01 Incorporated D3066-1 IPP KJ/RF IPP Rev:B Now M6061-T6 06-06-23 JLM

**Ship Via:**

### Bill of Materials

### Job Routing

| Op No | Operation          | Qty    | Start Date | Due Date | Standard  |         | Workcenter/Supplier   |           | Sign-off        |
|-------|--------------------|--------|------------|----------|-----------|---------|-----------------------|-----------|-----------------|
|       |                    |        |            |          | Setup hrs | Run Hrs | Workcenter / Supplier | Lead Time |                 |
| 90    | Start up Operation | 30 Ea  |            | 2/5/18   | 0.00      | 0.00    | Start Up Waterjet     |           | 2/18/01/28      |
| 100   | Waterjet           | 30 pcs |            | 2/5/18   | 0.00      | 1.07    | Waterjet1             |           | 2/18/01/28 DAS  |
| 120   | QC                 | 30 pcs |            | 2/5/18   | 0.00      | 0.00    | QC8                   |           | 2/18/01/28 38   |
| 130   | HandFinish         | 30 pcs |            | 2/6/18   | 0.00      | 0.46    | HandFinish1           |           | 2/18/01/29 9-89 |
| 140   | QC                 | 30 pcs |            | 2/6/18   | 0.00      | 0.00    | QC7-2                 |           | 2/18/01/29 9-89 |
| 150   | Packaging          | 30 pcs |            | 2/6/18   | 0.00      | 0.00    | Packaging3            |           | 2/18/01/29 9-89 |
| 160   | QC21-SA            | 30 Ea  |            | 2/6/18   | 0.00      | 0.00    | QC21                  |           | 2/18/01/29 9-89 |

Part Op 100 - 1-Cut as per Dwg D3066

Descriptions: 150 - \*\*\* STOCK IN STEP CELL\*\*\*

21  
9-89

JAN 29 2018

### Job BOM

| Part / Item  | Component Name     | Quantity             | Operation             | Container |
|--------------|--------------------|----------------------|-----------------------|-----------|
| M6061T6S.080 | 6061-T6 .080 Sheet | 2.8350 sf (.0945 ea) | 90-Start up Operation |           |

### Job Allocations

| Operation             | Component Part | Required | Inventory | Allocated |
|-----------------------|----------------|----------|-----------|-----------|
| 90-Start up Operation | M6061T6S.080   | 3        | 181       | 0         |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                  |                          |                                               |                          |                                    |  |                                              |  |
|----------------------------------|--------------------------|-----------------------------------------------|--------------------------|------------------------------------|--|----------------------------------------------|--|
| Work Order: _____                |                          | <b>DISPOSITION</b>                            |                          | <b>AGAINST DEPARTMENT/PROCESS</b>  |  |                                              |  |
| Part No. _____                   |                          | Rework <input type="checkbox"/>               |                          | Skid-tube <input type="checkbox"/> |  | Cross tube <input type="checkbox"/>          |  |
| NCR No. _____                    |                          | Scrap <input type="checkbox"/>                |                          |                                    |  | r Jet <input type="checkbox"/>               |  |
|                                  |                          | Use-as-is <input type="checkbox"/>            |                          |                                    |  | Engineering Quality <input type="checkbox"/> |  |
|                                  |                          | Suspected Unapproved <input type="checkbox"/> |                          |                                    |  | Other <input type="checkbox"/>               |  |
| Date : _____                     |                          | Step #: _____                                 |                          |                                    |  |                                              |  |
| Description Work Order Deviation |                          |                                               |                          |                                    |  | MRB (QSI042) Approval                        |  |
|                                  |                          |                                               |                          |                                    |  | Completed By                                 |  |
|                                  |                          |                                               |                          |                                    |  | Lead hand / Supervisor Approval Verification |  |
|                                  |                          |                                               |                          |                                    |  | QC / QA Coordinator Approval                 |  |
| <b>Root Cause</b>                |                          |                                               |                          |                                    |  |                                              |  |
| Environment                      | <input type="checkbox"/> | No Re-verification                            | <input type="checkbox"/> | Pressure/Forced                    |  |                                              |  |
| Design                           | <input type="checkbox"/> | Operator                                      | <input type="checkbox"/> | Bending                            |  |                                              |  |
| Doc/Data                         | <input type="checkbox"/> | Offset/Setup                                  | <input type="checkbox"/> | Centre Not Concentric              |  |                                              |  |
| Equip/Tooling                    | <input type="checkbox"/> | Supplier                                      | <input type="checkbox"/> | Cracks                             |  |                                              |  |
| Handling/Pre                     | <input type="checkbox"/> | Training                                      | <input type="checkbox"/> | Crimp/Kink/Ripple/Wave             |  |                                              |  |
| Material                         | <input type="checkbox"/> | Use for Testing                               | <input type="checkbox"/> | Cuffs                              |  |                                              |  |
| Internal Transport               | <input type="checkbox"/> | Poor Information                              | <input type="checkbox"/> | Crushing                           |  |                                              |  |
| Tribal Knowledge                 | <input type="checkbox"/> | Rushing                                       | <input type="checkbox"/> | Heat Treat                         |  |                                              |  |
| LOA                              | <input type="checkbox"/> | Product Improvement                           | <input type="checkbox"/> | Wave/Twist in Tube                 |  |                                              |  |
| Substation                       | <input type="checkbox"/> | Process Improvement                           | <input type="checkbox"/> | Marks/Chatter                      |  |                                              |  |
| Past Expiry Date                 | <input type="checkbox"/> | Manufacturing Process                         | <input type="checkbox"/> |                                    |  |                                              |  |
| Misidentified                    | <input type="checkbox"/> | Past Due                                      | <input type="checkbox"/> | OTHER :                            |  |                                              |  |

**Dart Aerospace Ltd.**  
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www.dartaerospace.com

**S036200**

**Spacer**

**D3066-1**

**PART NO:**

**Original Serial #:**

**Revision:**

**Operation:**

**Change No:**

**Start up Operation 01/28/18**

**Job No: 170996**

☐ Positioned Wrong  
☐ Outside Dimensions  
☐ Over/Under tolerance  
☐ Part Incorrect  
☐ Part Lost/Missing  
☐ Part Moved  
☐ Drawing  
☐ Finish  
☐ Misread  
☐ Turning Sequence

| Part Specifications |             |                                |                  |      |                  |
|---------------------|-------------|--------------------------------|------------------|------|------------------|
| Spec No             | Description | Target/Tolerance               | Limits           | Type | Special Comments |
| 1                   | Spacer      | 0.128inches + 0.005<br>- 0.000 | 0.133<br>0.128   |      |                  |
| 2                   | Spacer      | 0.708inches ± 0.010            | 0.718<br>0.698   |      |                  |
| 3                   | Spacer      | 0.354inches ± 0.010            | 0.364<br>0.344   |      |                  |
| 4                   | Spacer      | 0.354inches ± 0.010            | 0.364<br>0.344   |      |                  |
| 5                   | Spacer      | 2.250inches ± 0.005            | 2.255<br>2.245   |      |                  |
| 6                   | Spacer      | 16.450inches ± 0.010           | 16.460<br>16.440 |      |                  |
| 7                   | Spacer      | 0.080inches ± 0.010            | 0.090<br>0.070   |      |                  |

Plex 1/25/18 12:35 PM dart.lacelle.linda



DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                              |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                         |  |                                              |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Step #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | MRB (QS1042) Approval                        |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | Completed By                                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | Lead hand / Supervisor Approval Verification |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | QC / QA Coordinator Approval                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                              |  |
| Root Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FAULT CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                              |  |
| <div style="display: flex;"> <div style="flex: 1;">           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div style="flex: 1;">           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> | <div style="display: flex;"> <div style="flex: 1;">           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div style="flex: 1;">           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> </div> | <div style="display: flex;"> <div style="flex: 1;">           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Misabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div style="flex: 1;">           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  |                                              |  |
| OTHER : <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                              |  |

|                                            |  |                     |                    |
|--------------------------------------------|--|---------------------|--------------------|
| <b>DART AEROSPACE LTD</b>                  |  | <b>Work Order:</b>  | 170956             |
| <b>Description:</b> Spacer                 |  | <b>Part Number:</b> | D3066-1            |
| <b>Inspection Dwg:</b> D3066 <b>Rev:</b> B |  |                     | <b>Page 1 of 1</b> |

## FIRST ARTICLE INSPECTION CHECKLIST

☒ **First Article**      ☐ **Prototype**

[illegible]

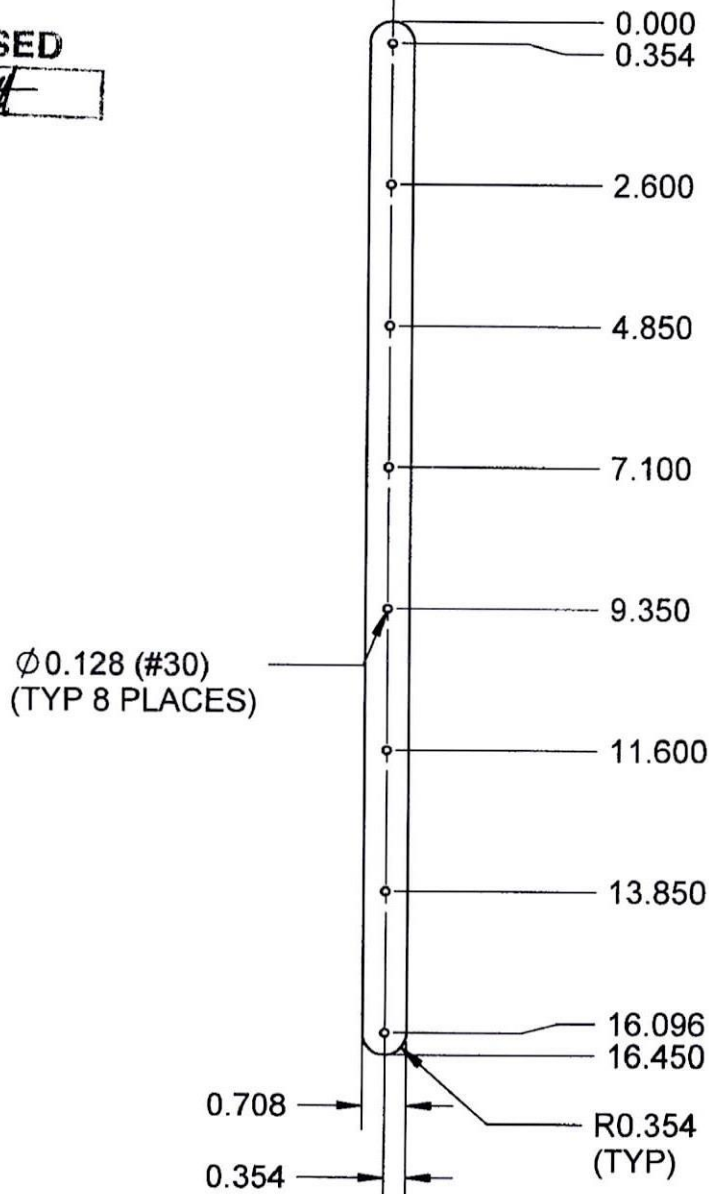
|              |  |             |  |                     |  |
|--------------|--|-------------|--|---------------------|--|
| Measured by: |  | Audited by: |  | Prototype Approval: |  |
| Date:        |  | Date:       |  | Date:               |  |

| Rev | Date     | Change                  | Revised by | Approved |
|-----|----------|-------------------------|------------|----------|
| A   | 03.09.22 | New Issue P/O D3065-041 | KJ/RF      |          |
| B   | 06.06.23 | Dwg Rev. changed        | KJ/JLM     |          |



|                         |                                |                                                          |                        |
|-------------------------|--------------------------------|----------------------------------------------------------|------------------------|
| DESIGN<br><i>CP</i>     | DRAWN BY<br><i>CB</i>          | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA |                        |
| CHECKED<br><i>PH</i>    | APPROVED<br><i>[Signature]</i> | DRAWING NO.<br><b>D3066</b>                              | REV. B<br>SHEET 1 OF 1 |
| DATE<br><b>06.05.29</b> |                                | TITLE<br><b>SPACER</b>                                   | SCALE<br>1:3           |
| A                       | 02.09.11                       | NEW ISSUE                                                |                        |
| B                       | 06.05.29                       | ADD 6061-T6 MATERIAL                                     |                        |

**RELEASED**  
*de. de. 20* *[Signature]*



SHOP COPY  
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UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 170996

*MC5*  
*18-01-28*

**D3066-1 SPACER**

- 1) MATERIAL: 6061-T6 (PER QQ-A-250/11 OR AMS 4025 OR AMS 4027) 0.080" THICK (REF DART SPEC M6061T6S.080)  
OR  
5052-H32/H34 (PER QQ-A-250/8 OR AMS 4016) 0.080" THICK (REF DART SPEC. M5052H32S.080)
- 2) FINISH: ACID ETCH & ALODINE PER DART QSI 005 4.1
- 3) BREAK ALL SHARP EDGES 0.005 TO 0.010
- 4) PART IS SYMMETRIC ABOUT CENTERLINE
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6) ALL DIMENSIONS ARE IN INCHES

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